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ASARCO

ANNUAL REPORT

1965

AMERICAN SMELTING AND REFINING COMPANY



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ASARCO

ANNUAL REPORT 1965

AMERICAN SMELTING AND REFINING COMPANY

General Offices

120 Broadway, New York, N. Y. 10005

Corporate Office

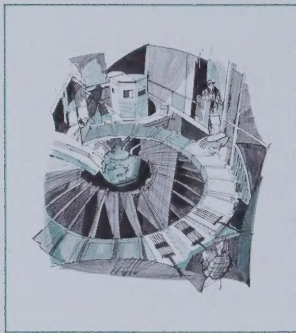
15 Exchange Place
Jersey City, N. J. 07302

Registrar of Stock

The Chase Manhattan Bank (National Association)
1 Chase Manhattan Plaza
New York, N. Y. 10015

Transfer Office

120 Broadway, New York, N. Y. 10005



HIGHLIGHTS

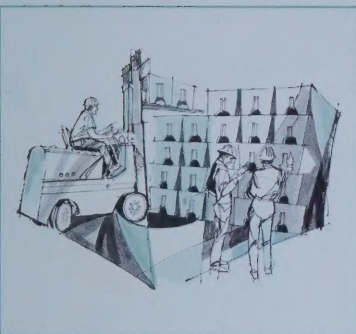
	1965	Per Share	1964	Per Share
NET EARNINGS*	\$ 52,456,000	\$4.80	\$ 41,918,000	\$3.77
EQUITY IN UNDISTRIBUTED EARNINGS OF				
NON-CONSOLIDATED SUBSIDIARIES	<u>15,530,000</u>	<u>1.42</u>	<u>13,009,000</u>	<u>1.17</u>
TOTAL	\$ 67,986,000	\$6.22	\$ 54,927,000	\$4.94
DIVIDENDS PAID	\$ 30,789,000	\$2.80	\$ 23,295,000	\$2.10
WORKING CAPITAL:				
Cash and Temporary Cash Investments	\$119,229,000		\$ 94,570,000	
Other Current Assets	<u>159,290,000</u>		<u>169,841,000</u>	
Total Current Assets	278,519,000		264,411,000	
Current Liabilities	<u>86,849,000</u>		<u>78,259,000</u>	
Net Working Capital	<u>\$191,670,000</u>		<u>\$186,152,000</u>	
STOCKHOLDERS	22,800		22,050	
EMPLOYEES	12,904**		12,907**	

*In addition, there were non-recurring profits, net after taxes:

1965 — \$3,741,000, or 34¢ per share.

1964 — \$3,033,000, or 27¢ per share.

**Does not include employees in Mexico. Fifty-one percent of the Capital Stock of the former wholly owned Mexican operating subsidiary was sold in July 1965.



TO ASARCO STOCKHOLDERS: Business conditions were excellent throughout 1965 and the Company had the best year in its history. In line with the high level of industrial activity, metal markets were strong throughout the year. However, despite record Free World production of copper and a 10% increase in deliveries to fabricators in the United States, consumers were unable to obtain all the copper they sought. The price charged by domestic producers increased 2¢ in May to 36¢ where it stood at the end of the year. The price charged by the principal foreign producers rose to 38¢, while prices in the dealer markets in the United States and on the London Metal Exchange were sharply higher.

Earnings per share of the Common Stock, excluding a non-recurring capital gain of 34¢ a share, were \$4.80 this year, as compared with \$3.77 a share in 1964 and a new high for the Company. Adding Asarco's equity in the undistributed earnings of non-consolidated subsidiaries gives a combined total of \$6.22 a share, as compared with \$4.94 a share in 1964.

The quarterly dividend paid in February was increased 10¢ to 50¢ a share and was increased again in August to 65¢ a share. In November an extra dividend of 50¢ was added, making payments for the year \$2.80 a share, a record high.

The Company's domestic mines and plants operated continuously at high levels throughout the year and a number of important capital projects were undertaken. Highlights of the year included projects to increase production at the Mission mine, to join in the development of the Granduc copper mine in British Columbia, to firm up the capacity of the copper plants and to build a new lead smelter in Missouri. These and other new investments will lead to sharply higher capital expenditures over the next few years, which we expect to finance internally.

We continue to stress exploration for new ore deposits both in the United States and abroad and the proving up of additional ore reserves at the operating properties. Detailed engineering studies for the evaluation of the Company's porphyry copper deposit at Michiquillay, Peru, were advanced.

Southern Peru Copper Corporation, owned 51.5% by the Company, had another good year and accomplished a further reduction in its debt. It is anticipated that Southern Peru will pay its first dividend in 1966. Additional drilling for mine design at the nearby Cuajone deposit should be completed by the middle of the year and engineering work required to bring the mine into production is going forward.

The strike at Mount Isa Mines, Limited was settled in February. All operations were back to normal by June and continued at a satisfactory level for the rest of the year. The long strike at the property will delay the completion of the expansion program in the mine.

The Company's long continued effort to adjust to the requirements of Mexican law was successful and as of July 1st the Company sold a 51% interest in its Mexican subsidiary to a group of Mexican investors. This adjustment in the ownership of the Mexican company qualifies it for certain tax benefits and makes it possible to proceed with expansion projects at four of the Mexican mines. In the near term, dividends on our 49% interest in the Mexican company will be limited by its requirements for increased capital expenditures.

On behalf of the Board of Directors, we again express our appreciation to the Asarco men and women whose loyal efforts make possible the Company's performance, and to our customers, suppliers and stockholders for their continued support.

E. MCL. TITTMANN
Chairman

R. D. BRADFORD
President

February 21, 1966

1965

THE YEAR IN REVIEW

EARNINGS AND DIVIDENDS Earnings and dividends in 1965 were the highest in the Company's history. Earnings of \$52,456,000 equal to \$4.80 per share of common stock compare with 1964 earnings of \$41,918,000 equal to \$3.77 per share, the previous record high. Equity in undistributed earnings of non-consolidated subsidiaries was \$15,530,000 or \$1.42 per share compared with 1964 figures of \$13,009,000 and \$1.17 per share. The 1965 total rose to \$67,986,000 and \$6.22 per share from \$54,927,000 and \$4.94 per share in 1964.

These favorable comparisons are due largely to strong metal markets and capacity operations at most of the Company's mines and plants. Operating costs were well controlled in the face of higher wage rates and material costs. In the first half of the year the Mission copper mine produced ore of above-average grade. Also income from dividends and interest was up.

Sale of a 51% interest in the Company's former wholly owned Mexican operating subsidiary resulted in the omission of further operating results from the consolidated financial statements starting with July 1, 1965. This former subsidiary is now known as Asarco Mexicana, S.A. and is dealt with in more detail later in this report.

The 1965 earnings stated above exclude a capital gain of \$3,741,000 or 34¢ per share arising from that portion of the shares of the Mexican subsidiary which were sold for cash.

The quarterly dividend on the Common Stock paid in February, 1965, was raised to 50¢ a share, up from 40¢. In August the payment was increased again, to 65¢. In November an extra dividend of 50¢ was added, making a total of \$2.80 paid for the year.

FINANCIAL POSITION The excellent earnings of the year further strengthened the Company's current financial position. Net current

assets increased from \$186,152,000 in 1964 to \$191,670,000. Cash and temporary cash investments rose from \$94,570,000 to \$119,229,000.

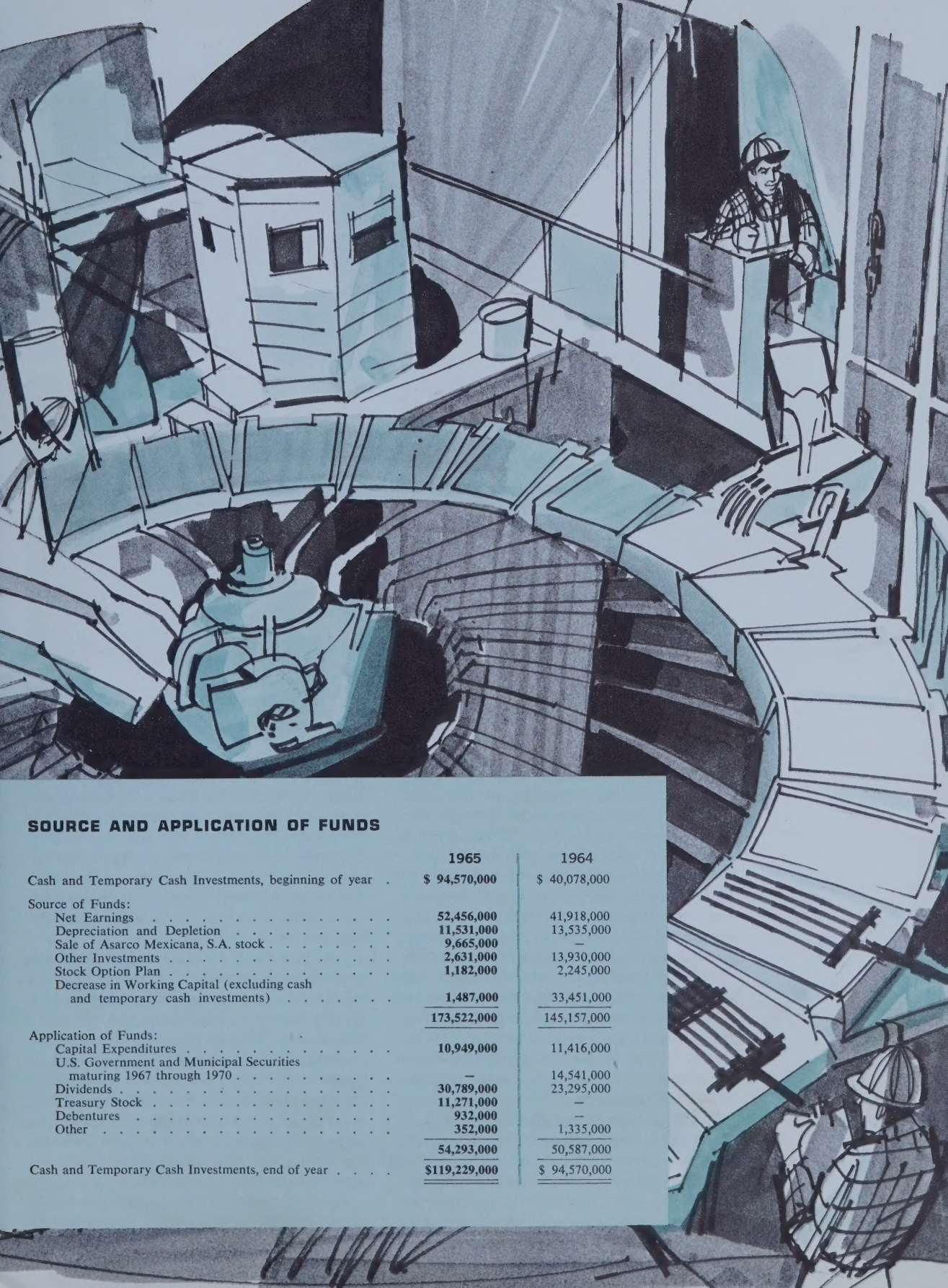
Capital expenditures were covered by charges against earnings for depreciation and depletion. Cash was received for a portion of the shares of our Mexican subsidiary and there was a net reduction in other investments.

Over a period of years the Company has purchased limited amounts of its own stock for distribution to employees under the Additional Compensation Plan and for acquisition of other companies. During 1965, however, stock purchases were increased and the balance on hand at the year-end, not allotted to employees, was 232,843 shares at a cost of \$12,497,000. The Company will, from time to time, consider the desirability of further purchases of its stock in light of conditions then prevailing.

CAPITAL EXPENDITURES Capital expenditures were \$10,949,000 in 1965 compared with \$11,416,000 in 1964.

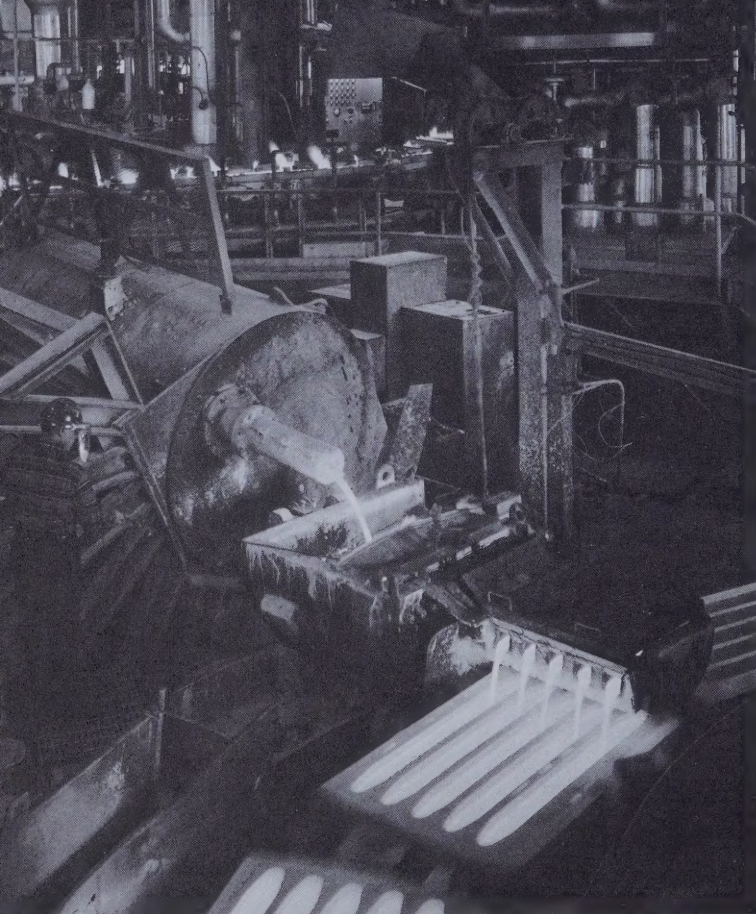
At the beginning of 1966, the unexpended property appropriations were \$50,631,000, compared with \$6,873,000 a year before. Capital expenditures in 1966 are now expected to be about three times the 1965 level.

METAL MARKETS In line with rising industrial activity, production and consumption of the principal nonferrous metals in the United States showed substantial gains in 1965 over 1964. Prices were firm for lead, zinc and silver. The price of copper was subject to strong upward pressures arising from a combination of soaring demand, some interruptions in imported supplies, and political uncertainties in major foreign producing areas. Outside the United States, the level of consumption continued high but there were some weak spots, and the gains, overall, were less marked than in this country.



SOURCE AND APPLICATION OF FUNDS

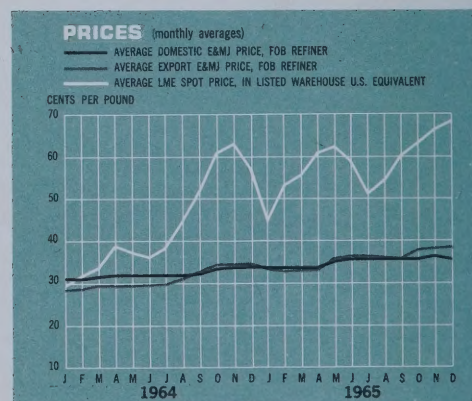
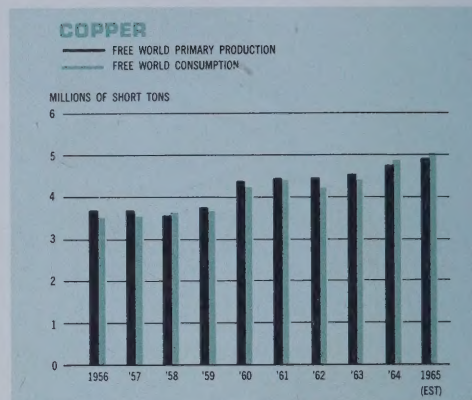
	1965	1964
Cash and Temporary Cash Investments, beginning of year	\$ 94,570,000	\$ 40,078,000
Source of Funds:		
Net Earnings	52,456,000	41,918,000
Depreciation and Depletion	11,531,000	13,535,000
Sale of Asarco Mexicana, S.A. stock	9,665,000	—
Other Investments	2,631,000	13,930,000
Stock Option Plan	1,182,000	2,245,000
Decrease in Working Capital (excluding cash and temporary cash investments)	1,487,000	33,451,000
	<u>173,522,000</u>	<u>145,157,000</u>
Application of Funds:		
Capital Expenditures	10,949,000	11,416,000
U.S. Government and Municipal Securities maturing 1967 through 1970	—	14,541,000
Dividends	30,789,000	23,295,000
Treasury Stock	11,271,000	—
Debentures	932,000	—
Other	352,000	1,335,000
	<u>54,293,000</u>	<u>50,587,000</u>
Cash and Temporary Cash Investments, end of year	<u>\$119,229,000</u>	<u>\$ 94,570,000</u>



Casting copper wire bars at the Perth Amboy, New Jersey refinery.

COPPER A prosperous but difficult year was experienced by the copper industry in 1965. Demand was unflagging throughout the year, with producers unable to cope with the importunities of their customers in spite of an increase of 5% in Free World production to the highest level ever recorded, plus the release of substantial quantities of copper from the U.S. Government stockpile. Deliveries of refined copper to Free World fabricators, as reported by the Copper Institute, were 3% higher than in 1964 and again set an all-time record. Actually, fabricators in the United States fared far better than their foreign competitors, as deliveries to U.S. plants rose by 173,000 tons, while outside this country fabricators received 70,000 tons less than in 1964.

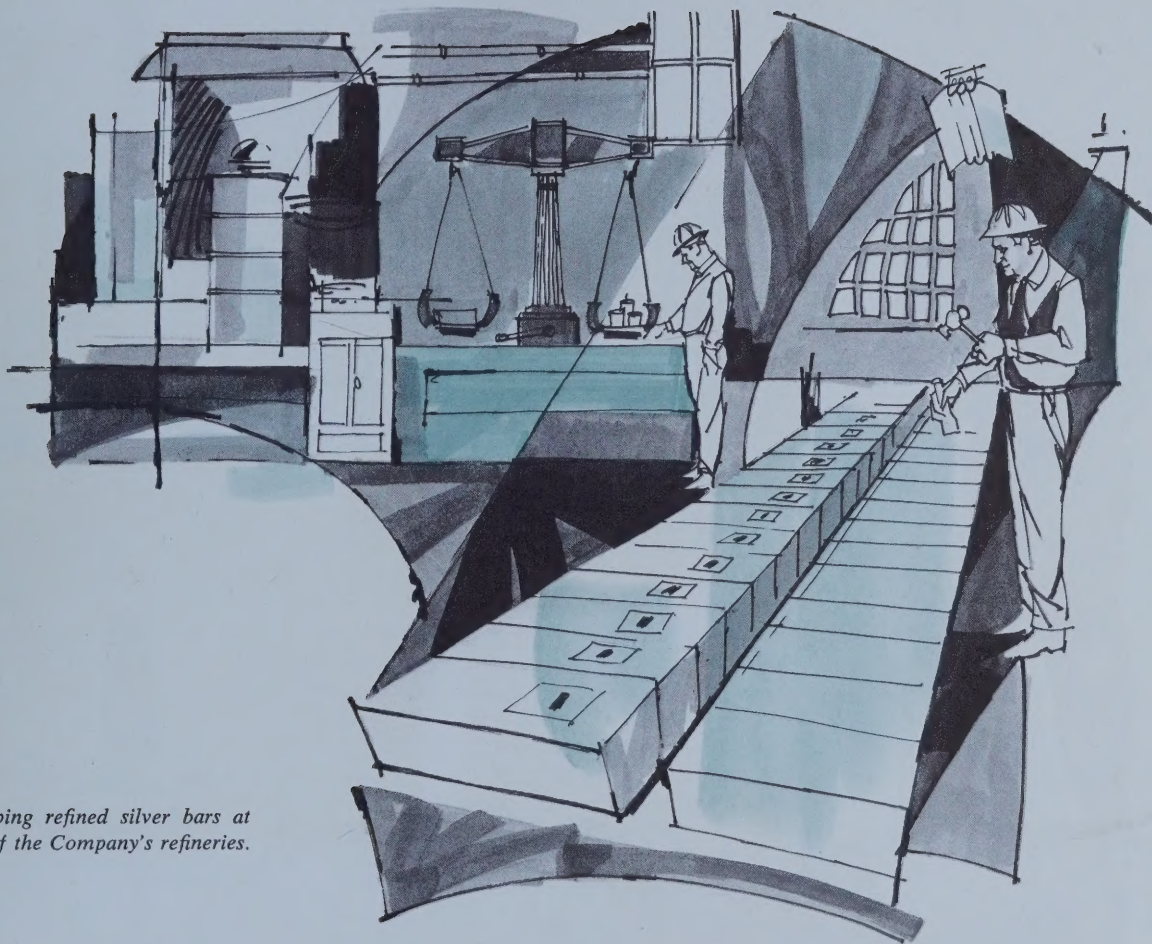
This diverse experience reflected three factors. The first was that industrial activity as a whole increased more sharply in the United States than in other major industrial areas of the world. The second was that releases from stockpile, including material transferred to the U.S. Mint for



coinage, were restricted to consumers in the United States. The third was that interruptions in supply that caused the year's difficulties occurred largely outside this country, notably the strikes in Chile, and the political developments in central Africa culminating in the independence of Rhodesia with its potential effects on supplies of copper from Zambia and the Congo.

The uncertainties and confusion over the availability of adequate copper supplies were reflected in a constantly seething outside market for the metal on the commodity exchanges, both in London and New York. The major producers continued to strive to maintain orderly markets and to keep prices at levels that would prevent large-scale loss of markets to competing materials. However, some price increases, initiated by the large producers in Chile and Zambia, did occur — to a major extent because of pressure from their governments.

At the beginning of the year the price in the United States was 34¢ a pound. This was raised



Stamping refined silver bars at one of the Company's refineries.

to 36¢ in May following an advance in the price charged by major producers outside the United States. After another rise in the price abroad, a further increase to 38¢ was briefly posted in November by some U.S. producers. However, as the result of steps taken by the United States Government, the price charged by the major U.S. producers dropped back to 36¢.

Meanwhile, quotations for domestic copper scrap soared and the dealer market in refined copper rose well above 60¢. In December the Government imposed export controls on certain types of copper scrap. In January, 1966 these controls were broadened to include other forms of copper and, with Administration backing, a bill was introduced in the Congress to suspend the copper import duty of 1.7¢ a pound.

Outside the United States, the price was 32½¢ a pound for African and Canadian metal and 35¢ a pound for Chilean metal when the year began. In May, major foreign producers raised their prices to 36¢ and in October to 38¢. On January 3, 1966, there was a further advance

to 42¢. Meanwhile the lowest price for prompt copper wirebars on the London Metal Exchange in 1965 was equivalent to 41¢ a pound and the highest price was 71¢ in December.

SILVER As anticipated at the beginning of the year, the major development in the silver market during 1965 was a change in the composition of United States subsidiary coinage. The enormous demand for coinage and the shrinking stocks of silver in the hands of the Treasury had made it clear that the Government could not continue to mint subsidiary coins of the standard 90% silver-10% copper alloy which had circulated since 1792.

In June the Congress enacted a Treasury proposal to mint coins without silver in the 10- and 25-cent denominations, and coins with a reduced content of 40% silver and 60% copper in the 50-cent denomination.

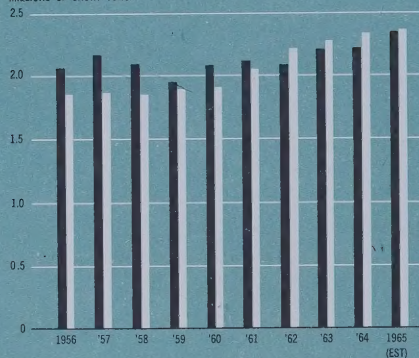
The first of the new 25-cent coins were placed in circulation in late October, 1965. Production of enough new coins to meet the country's coin-



LEAD

— FREE WORLD PRIMARY PRODUCTION
— FREE WORLD CONSUMPTION

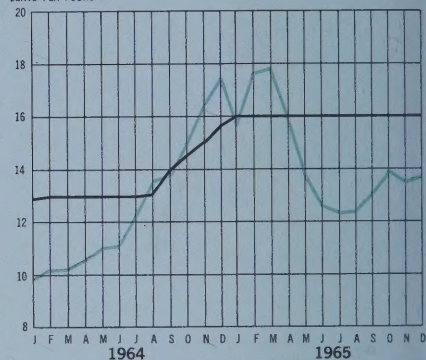
MILLIONS OF SHORT TONS



PRICES (monthly averages)

— AVERAGE DOMESTIC E&M PRICE, NEW YORK BASIS
— AVERAGE LME SPOT PRICE, IN LISTED WAREHOUSE

CENTS PER POUND



age needs in the event the high-silver-content coins disappear from circulation will take two to three years. The Administration has expressed a hope that the old coins will continue to circulate side by side with the new coins.

The new legislation empowered the U.S. Treasury to continue to sell silver at \$1.29 an ounce from its available stocks. This move is designed to prevent an early rise in the price of silver, which might cause massive hoarding or melting down of present subsidiary coinage. The total Treasury holdings of silver (1,200,000,000 ounces on January 1, 1965) were 800,000,000 ounces at year end. The rate of draw-down of Treasury stocks is not expected to be as great in 1966 as in 1965 due to reduced U.S. coinage demand.

Industrial consumption of silver in the Free World in 1965 rose by 15% and was 112 million ounces greater than new mine production, which rose only 2%. The deficit in supply was met through Treasury sales to industry. Although world silver production is expected to increase over the next few years, it appears unlikely that it will soon catch up with steadily rising demand. Thus the prospect is eventually for higher silver prices when Treasury metal is no longer available to the market.

LEAD Although lead consumption in the United States in 1965 rose only a modest 2%, the industry enjoyed an excellent year with a stable and satisfactory price. For the first time in several years there was no change in the price charged by producers which remained at 16¢ a pound, New York, throughout the year. For a brief period during the second quarter there was some speculation that the quotation here might be undermined by the sagging price on the London Metal Exchange, but this concern disappeared during the third quarter when the London price recovered.

Producers' stocks in the United States remained at a low level at all times. Refined production was actually 6% below 1964, due to reduced imports of foreign concentrates during the first half of the year. These more than offset

the modest gain of 7,000 tons in domestic mine production.

The erratic price abroad was caused largely by fears of short supply during the first quarter, when the Mount Isa mine was on strike, and then by expectations of possible surpluses after the strike at Mount Isa ended simultaneously with increased shipments of lead metal into Europe from countries of the Soviet bloc. The London price reached a peak equivalent to over 19¢ a pound in the first quarter, dropped to less than 12¢ in the second quarter, and then steadied out at a range of 13¢ to 14¢ a pound during the last half of the year.

Conscious of the problems that may result from future sharp increases in mine production—notably from Canada and from the new developments in Missouri—the lead industry has intensified efforts to find new markets. The bright prospects for the automobile industry throughout the world promise continued growth in use of lead for batteries and for anti-knock compounds. Because of concern over air pollution and suggestions to restrict the use of tetraethyl lead, a study was made by the U.S. Public Health Service in Los Angeles, Philadelphia and Cincinnati. This study indicated that there was no deleterious effect on health resulting from the use of leaded gasoline. Continued efforts are being made for greater use of lead in construction, notably in sound attenuation and anti-vibration pads.

ZINC Long regarded as something of a Cinderella among the metals, zinc in recent years has shown a consistent record of growth in consumption, which promises to continue. Consumption in the United States was 11% higher in 1965 than in 1964 and further gains are indicated. In its two major markets—automobiles and steel—zinc seems strongly entrenched.

Although domestic production was higher in 1965, by 5% at the smelters and by 6% at the mines, the available supply was insufficient to meet demand. Until the fourth quarter, imports of metal were limited by quotas. Stocks in producers' hands were at minimum levels all year. Thus to supply their needs, consumers drew heavily on government stockpiles. About 219,000 tons were sold from stockpile during the year, but of this 69,000 tons will not be received by consumers until 1966. Under existing authority the Government can sell another



Handling one ton zinc ingots at the Corpus Christi electrolytic plant.

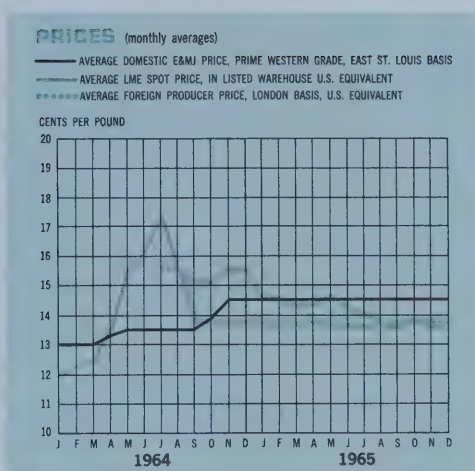
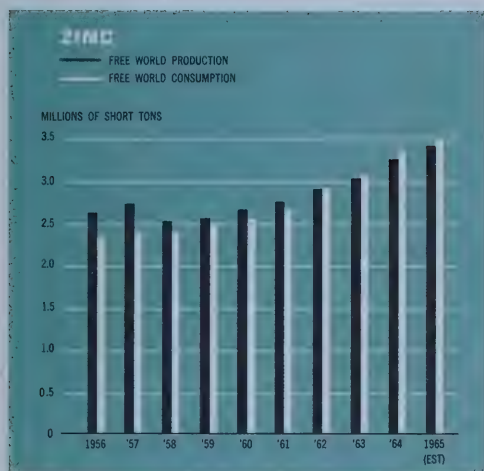
131,000 tons to industry during 1966 as well as take 50,000 tons from stockpile for its own use. Coupled with the probability of greater imports (now that quota restrictions have been ended) and the prospects of some further increase in domestic production, ample supplies should be available for users in 1966.

The price of zinc in the domestic market remained at 14½¢ throughout the year. Prior to the enactment of stockpile legislation, some imported metal was sold by dealers at premiums early in the year, but at most times the situation was quiet and orderly. The foreign producer price, first established in 1964, was also unchanged at the equivalent of 13¾¢ throughout 1965. On the London Metal Exchange the open market position traded at only slight premiums or discounts from the producer price.

STOCKPILES Taking advantage of continued good industrial demand in 1965, the administrators of the U.S. Government stockpiles were able to sell sizable quantities of stockpile materials that had been classed as surplus. Pro-

posed legislation to give broad discretionary power to the executive branch in matters of stockpile disposal failed to obtain the approval of the House of Representatives. Therefore the procedure for disposals in 1965 was the same as in the previous year. Among the major metals in which Asarco is interested, the significant legislation enacted in 1965 covered 350,000 tons of zinc for sale to industry, plus 50,000 tons of zinc for direct government use; 150,000 tons of lead for sale to industry, plus 50,000 tons for direct government use; and 100,000 tons of copper for sale to industry, plus 118,000 tons for use by the mint in coinage.

In addition, in November 1965, President Johnson determined that the national defense required the release of an additional 200,000 tons of copper from the stockpile. Of this 200,000 tons, only 35,000 tons represented surplus metal and 165,000 tons was released against holdings earmarked for the stockpile objective. This was the first instance in which the President exercised his prerogative to make a stockpile release for national defense purposes from ma-



terials in the Strategic Stockpile itself. The President acted on the advice of the Attorney General who made a determination that the Presidential finding was within the scope of the 1946 statute establishing the stockpile program.

QUOTAS Based on a finding by the U.S. Tariff Commission that termination of import quotas on lead and zinc would not adversely affect the U.S. producing industry, President Johnson in October terminated the restrictions originally imposed in 1958. There was no immediate sharp increase in imports because the level of demand for both lead and zinc outside the United States was strong, and producers' stocks were not large. Nevertheless, production is expected to rise considerably in 1966, particularly in Canada, and heavier imports into the United States are a strong likelihood for the coming year.

SMELTING & REFINING Smelting and refining at the Company's eleven primary United States plants were maintained at good levels.

Copper ores and concentrates for the smelters, and blister copper and scrap for the refineries, were augmented by the efforts of many producers to increase output. Operating rates were raised to handle the increased intake, much of which was on a toll basis. Raw and in-process stocks of copper and copper-bearing materials were held to the irreducible levels established in 1964.

The zinc plants operated at capacity throughout the year. Lead plant operations increased in the latter part of the year due to the availability of additional supplies of foreign ores and concentrates. The lead and zinc plants are the source of much of the Company's gold and silver as well as major by-product metals.

Numerous construction projects were started, most of them partly finished by the year-end. The more important of these are a sintering plant at East Helena; furnace enlargement, preheated air and additional converting capacity at El Paso and Hayden; additional covered storage for refined lead at Omaha and Selby; refined copper handling facilities at Tacoma;



and a plant to produce high-purity indium at the Globe Plant in Denver.

Among newer projects are authorization of an 825-foot stack for the copper department of the El Paso plant, and of a new lead smelter to be built near Ironton, Missouri. The new smelter will serve the new lead belt about 25 miles to the west as well as numerous small lead mines in the Mississippi Valley area.

EXPLORATION Exploration activity during the year was maintained throughout the Western Hemisphere and increased in some areas. All modern exploration techniques and instruments were used selectively with respect to geological and other environmental conditions. Work will continue at a number of locations where favorable indications were found.

A substantial underground exploration program was initiated in the Silver Belt of the Coeur d'Alene District of Idaho. Geophysical surveys and drilling programs were conducted in Canada, western United States, Tennessee, Missouri and several Latin American countries. The evaluation of the porphyry copper deposit at Michiquillay in northern Peru mentioned in last year's report is continuing.

Late in the year, an exploration office was opened in London.

Expenditures for exploration, examination and new mining projects were \$3,573,000 compared with \$3,950,000 in 1964. At the beginning of 1966 unexpended appropriations for new mining projects totaled \$4,123,000 compared with \$4,986,000 a year earlier.

MINING Total ore and waste mined from the Mission pit amounted to 35,928,000 tons of which 6,646,000 tons were ore producing 56,237 tons of copper. Harder ore reduced grinding capacity of the mill, but this was more than offset by higher grade ore mined during the first half of the year. The mill is being expanded to increase capacity 50%, with completion scheduled for early 1967. The molybdenum by-products plant operated satisfactorily throughout the year.

3,185,000 tons of ore were mined from both pits at Silver Bell producing 19,167 tons of copper. A slightly lower grade was offset by higher mine production. There was recovered from dump leaching 2,312 tons of copper as precipitates. Leaching operations were expanded during the year. Molybdenum production was down slightly from the previous year. The mill is being expanded to increase capacity by one sixth and this should be completed by the middle of 1966.

Operations at the Galena mine in Idaho produced 4,358,345 ounces of silver and 1,543 tons of copper in concentrates from 147,650 tons of ore. Work was started during the year to lower the No. 3 shaft from the 3000 to the 3700 ft. level.

There were no significant developments at the Page mine in Idaho which produced 130,000 tons of ore from which were recovered 5,723 tons of lead and 11,034 tons of zinc. In addition, silver recovery amounted to 354,202 ounces.

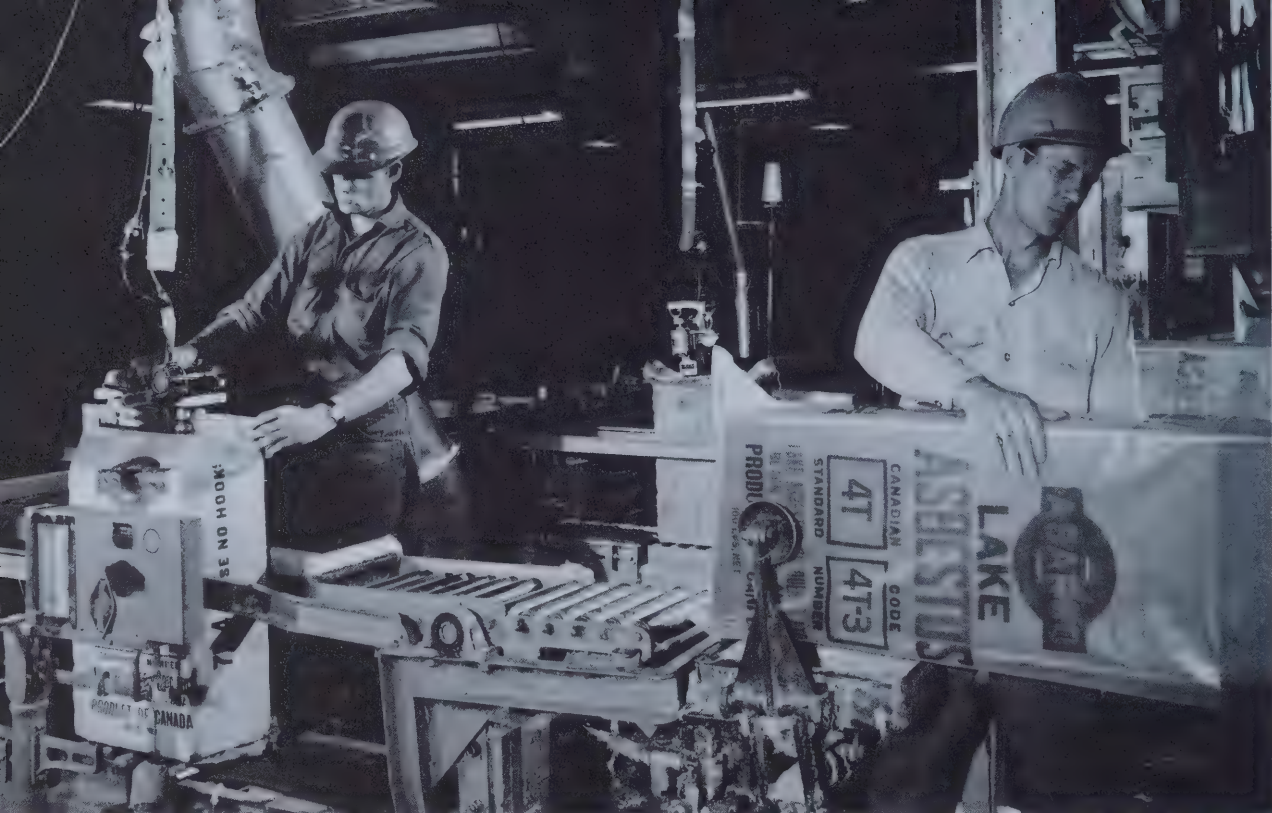
The Northport mine in Washington continued to mine and mill low-grade ore producing 9,867 tons of zinc and a small amount of lead.

The Buchans mine in Newfoundland produced 366,000 tons of ore which yielded a combined tonnage of copper, lead and zinc concentrates of 115,945 tons.

Construction of a new surface plant and mill expansion at the Quiruvilca mine in northern Peru to treat copper, lead and zinc ores in addition to the present production of copper ores proceeded during the year.

With the exception of the Page mine, ore reserves were well maintained.

In October 1965 the Company announced its participation in the Granduc copper mining project in British Columbia. This property has ore reserves now estimated at about 32,500,000 tons averaging 1.93% copper. Development is proceeding for the production of 7,000 tons of ore per day. The copper concentrates from this property will be smelted at the Company's Tacoma smelter commencing about 1970 when the mill is scheduled to be in operation. The Company and Newmont Mining Corporation will jointly operate and share in the earnings of this property which will be managed by a subsidiary of Newmont. It is estimated that Asarco's share of the investment will total about \$40,000,000.



Pressure packing asbestos fibre at Lake Asbestos of Quebec, Ltd., Black Lake, Quebec.

MEXICO In July, the Company sold 51% of the capital stock of its Mexican operating subsidiary to a group of Mexican industrialists. As consideration, the Company will receive between \$30,000,000 and \$40,000,000 of which about \$10,000,000 has been paid in cash. A substantial portion of the shares sold will be re-offered to the public in Mexico. The shares of Asarco Mexicana, S. A.—as the Mexican company is now known—have been listed on the Mexican stock exchanges.

The sale accomplished the revision in ownership of the Mexican company required by the Mexican Mining Law of 1961 and makes available the benefits of certain tax rebates and freedom from limitations on the tenure of mining concessions to which mining companies in Mexico more than 49%-owned by non-Mexican interests are now subject. American Smelting and Refining Company will continue to provide comprehensive technical and administrative services to the Mexican company and to handle the marketing of its exportable production in markets outside of Mexico.

The table below shows production of the Mexican company from ores and coal mined by Asarco Mexicana and from materials purchased from others for 1964 and 1965:

	PRODUCTION (In Short Tons)	
	1965	1964
Ore mined	1,770,105	1,961,234
Gold (ounces)	71,119	72,568
Silver (ounces)	16,049,455	16,518,646
Blister copper	22,454	22,860
Refined lead	81,819	79,644
Refined zinc	65,214	65,506
Zinc in concentrates and fume sold	51,266	57,851
Coal mined	858,322	881,355
Coke	434,116	441,728

In the latter part of the year, the Mexican company moved ahead with pending projects to increase ore production from operating units, and to expand related milling capacity about 24 per cent. These projects include mine and mill expansion at its Santa Bárbara, San Martín

and Taxco mines, and mine development and the construction of a 400-ton-per-day mill at its Plomosas mine. In addition, work went forward on the expansion and mechanization of the Sabinas No. 2 coal mine at Rosita, Coahuila, which will accomplish a threefold increase in production from that mine to replace coal now produced from higher-cost areas in mines which are nearing the end of their economic lives.

FEDERATED METALS The Federated Metals Division set new production and sales records during 1965 and profits were close to the all-time high. However, shortages of zinc and copper, as in 1964, necessitated allocation of products made from these metals and total sales were limited by available material.

The combined effect of high scrap prices, shortages and strong demand led to a situation in which prices of brass and bronze ingot reached new high levels and major consumers sought substitute materials.

A number of Federated plant improvements were made or started during the year and plans were completed at the end of the year for the establishment of Federated's Alloy Specialties Department at Swissvale, Pennsylvania. This facility will produce phosphor-copper brazing alloys, as well as silver solders and brazing alloys.

Federated Metals Canada Limited, in common with much of Canadian industry, had the best year in its history.

Enthone, Incorporated, an Asarco subsidiary supplying surface-finishing chemicals, moved research and production operations to a new 60,000-square-foot plant at West Haven, Connecticut, coincident with setting the highest sales and profits figures in its 35-year history. Contributing to these advances is the rapidly expanding acceptance of Enthone's proprietary process for electroless chemical-reduction plating of plastics.

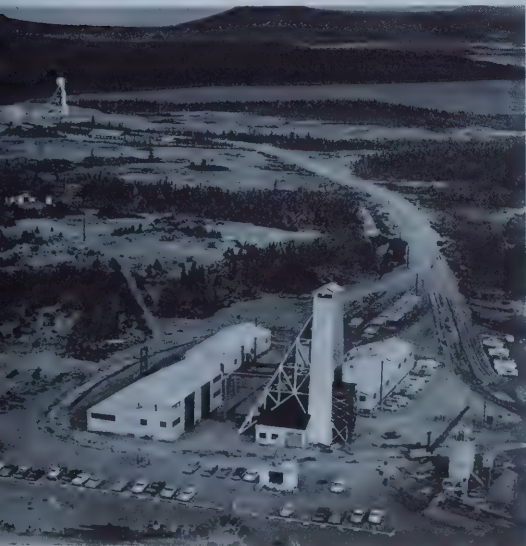
ASBESTOS Sales of asbestos fibres during 1965 by Asarco's wholly owned subsidiary, Lake Asbestos of Quebec, Ltd., Black Lake, Quebec, Canada, were maintained at a satisfactory level.

Comparative production and shipments for the last three years are as follows:

	<u>1965</u>	<u>1964</u>	<u>1963</u>
Production— short tons	114,803	103,582	90,008
Shipments— short tons	106,551	115,325	89,829

Technological advances in milling contributed to increased production of fibre though the grade of ore mined was lower than that of 1964.

A view of the Buchans mine in Newfoundland.



Enthone's new plant and laboratories at West Haven, Connecticut.



Ore reserves were maintained. The long-range stripping program mentioned in last year's report is under way on a contract basis.

Price increases for most grades of asbestos became effective on January 1, 1965. Asbestos markets continued to be keenly competitive during 1965 notwithstanding shortages in some of the asbestos cement grades. The greater part of our asbestos production consists of the high-quality fibres used by the expanding asbestos cement industry. The sales outlook for 1966 is good.

The Cement Asbestos Products Company in Alabama, in which Asarco has a 40% interest, started production of asbestos cement pipe in June 1965 and is operating successfully.

MOUNT ISA MINES LIMITED Operations of Mount Isa Mines, Queensland, Australia, of which Asarco owns 53.7%, were adversely affected by the prolonged strike mentioned in last year's report. Production for the fiscal year ending June 30, 1965 decreased from the previous year as shown in the accompanying table:

PRODUCTION (in short tons)	Year ending 6/30/65	Year ending 6/30/64
Ore treated	2,403,996	4,105,033
Silver (ounces)	4,070,534	5,947,432
Refined copper	44,466	75,517
Copper in concentrates (sold as concentrates)	2,989	2,220
Refined lead	53,431	64,034
Antimonial lead	5,431	7,563
Zinc in concentrates (sold as concentrates)	23,237	28,849

Operations at the mine were not resumed until February 17, 1965. All operations were normal by June. Various construction projects to expand Mt. Isa's capacity to 16,000 tons of ore per day were also suspended during the strike, and completion of the program will be delayed.

Since the greater part of the development drilling done during the year was to confirm known ore bodies and define stoping limits, there was no significant increase in ore reserves. However, the drilling proved enough reserve-grade ore to replace ore mined during 1965.

A view of the new K-57 shaft and new lead concentrator at Mount Isa Mines, Queensland, Australia.



SOUTHERN PERU COPPER CORPORATION The following table compares production of the Toquepala mine for the last three years:

PRODUCTION (in short tons)	1965	1964	1963
Total ore and waste mined	57,089,000	56,362,000	59,307,000
Ore mined	11,207,000	11,111,000	11,116,800
Blister copper	131,286	127,500	131,664
Molybdenum concentrates	1,450	835	1,087
Copper content of milled ore	1.29%	1.34%	1.37%

Four short wildcat strikes in 1965 cost the plant seven mill days and about 2500 tons of copper.

A 66,000 KVA generator for the Ilo powerhouse was commissioned in November. In December a 7,000-ton addition to the concentrator

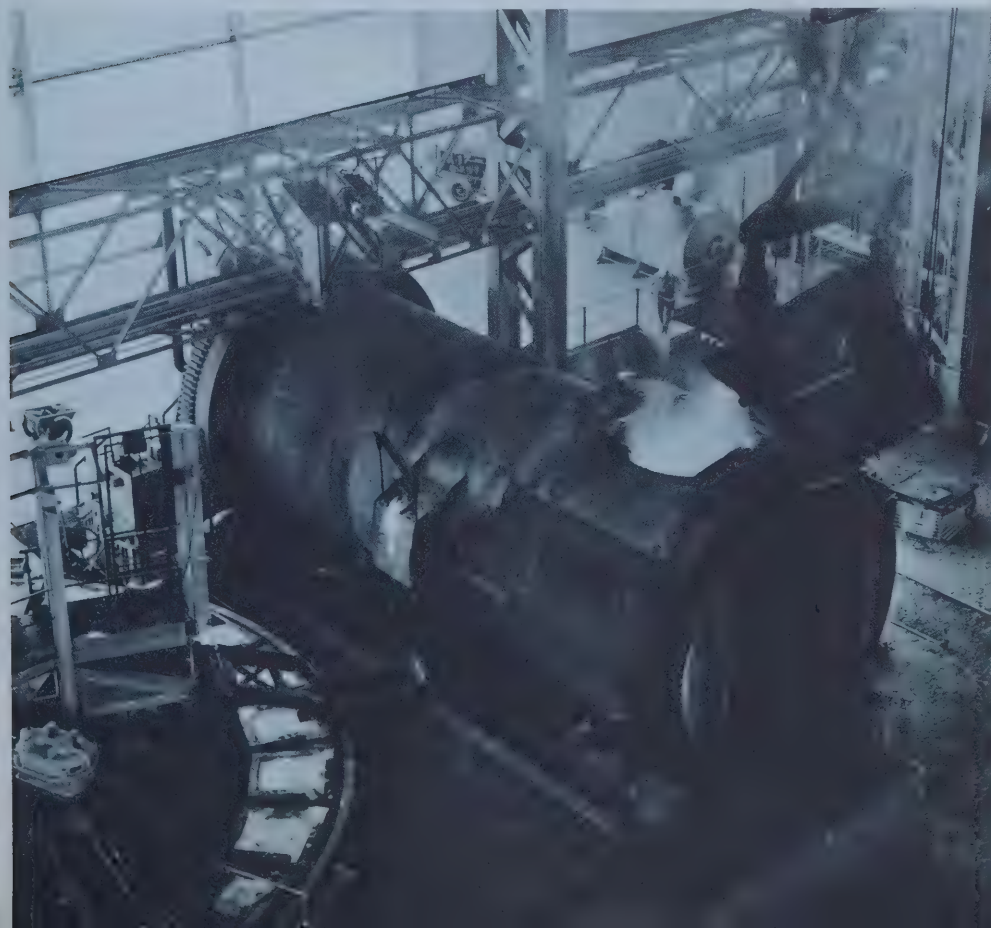
was finished and released for operation at the end of the year. This unit raises milling capacity to 40,000 tons a day. The increased ore production will offset, for the present, the lower grade ore available so that copper output can be maintained at the present level.

During the year work was started to install rail haulage in the lower part of the mine. One level was partly converted to rail by the end of the year.

During the year \$10,015,000 was spent in additions and improvements including the items mentioned above.

Additional diamond drilling—amounting to 57,315 feet—for mine design at Cuajone has progressed satisfactorily and is scheduled for completion in April. This deposit has previously been estimated to contain some 530,000,000 tons of 1% copper ore. Studies to determine the best method of transport, road locations, power and water lines and related matters required to bring the mine into production, were intensified in October by the assignment of an engineering task force to this project.

Pouring blister copper into holding furnace at Southern Peru Copper Corporation.





Zone refining of high-purity metals at the Central Research Laboratories, South Plainfield, New Jersey.

Housing for an additional 88 families and 384 single men was completed during the year.

During the year the Corporation debt was reduced to \$30,100,000 of which \$28,700,000 was owed to the Export-Import Bank.

RESEARCH The Research Department has continued its effective programs in three major areas: (1) process improvements which will be reflected at Asarco plants in operational economies and superior product quality, (2) development of new alloys which will broaden the application of nonferrous metals to industry, and (3) day-to-day cooperation with the sales staff and with Asarco customers on specific problems of metallurgy and foundry techniques.

During 1965, Research completed pilot-plant work for continuous casting of thin-gauge sheet lead as a new and superior material for sound attenuation. This is an effort to meet the growing recognition of noise and other forms of vibration as industrially and sociologically destructive influences.

Two new zinc alloys were developed and are showing promise as superior galvanized coatings for steel. Laboratory test results indicate that improved corrosion resistance may be obtained in exposure to industrial atmospheres, which have always afforded the most extreme test of galvanized steel.

Continuing research on lead-tin solders has developed new alloys of lower tin content. These solders are functionally comparable to those they replace, and benefit the consumer through the lower cost at which they can be sold because of the reduced tin content.

A novel application of magnetic separation

developed at the Research Department has enabled Lake Asbestos to increase production from its mill.

Asarco continues its support of industry-wide research programs in which the principal world producers of copper, lead, zinc, selenium and tellurium are participating.

EMPLOYEE RELATIONS Most of the Company's plants and mines operated under labor contracts negotiated in prior years, but new agreements were negotiated at several locations in the United States and Canada. Houston plant negotiations continued at year-end to replace the agreement expiring in early January.

Asarco continued its scholarship program at universities in the United States and Canada, as well as its plan for matching contributions by employees to universities and colleges of the employee's choice.

Programs of management development, safety, industrial medicine and hygiene, and training were maintained to meet the needs of the Company and its employees. Benefit plans and personnel procedures were further streamlined to simplify administration and reduce costs.

LITIGATION There was no change during the year in the status of the civil anti-trust suit brought by the Department of Justice in January, 1961, to test the legality under Section 7 of the Clayton Act, of the Company's investment in General Cable Corporation and Revere Copper and Brass Incorporated, made in 1927 and 1928. The complaint attacks Asarco's investment as such and contains no allegations of wrongdoing of any sort.

ASARCO PRODUCTS

MINING, SMELTING AND REFINING DIVISION PRODUCTS

ANTIMONY
ANTIMONY OXIDE
ANTIMONIAL LEAD
ARSENIC TRIOXIDE
BISMUTH
BRONZE • CONTINUOUS
CAST SHAPES
CADMIUM
CADMIUM SULFIDE
CADMIUM OXIDE
COPPER
FERRO-SELENIUM
GERMANIUM
CONCENTRATES
GOLD
HIGH PURITY
ELEMENTS
INDIUM
INDIUM SALTS
LEAD
MOLYBDENUM
CONCENTRATES
NICKEL SULFATE (crude)
PALLADIUM (crude)
PLATINUM (crude)
SELENIUM
SILVER
SLAG
SULFURIC ACID
SULFUR DIOXIDE
TELLURIUM
TEST LEAD

THALLIUM
THALLIUM SULFATE
ZINC
ZINC ALLOYS
ZINC CHLORIDE
ZINC SULFATE

LAKE ASBESTOS OF QUEBEC PRODUCTS

ASBESTOS FIBRE

FEDERATED PRODUCTS

ALUMINUM ALLOYS
ANODES • BRASS,
CADMIUM, COPPER,
LEAD, SILVER, TIN, ZINC
ASARCOLO FUSIBLE
ALLOYS

BABBITT METALS
BEARING ALLOYS
BISMUTH ALLOYS
BRASS INGOT
BRIGHTENERS
(for electroplating)
BRONZE INGOT
CADMIUM ALLOYS
CATHODIC
PROTECTION ANODES
CAULKING LEAD
COPPER ANODES (cast,
electro-deposited, rolled)
COPPER SHOT
COUNTERELECTRODE
ALLOYS

DEOXIDIZERS (metallic)

DIE-CASTING ALLOYS

LEAD PRODUCTS •
SHEET, PIPE, FITTINGS,
CONSTRUCTION

MAGNESIUM ALLOYS

MAGNESIUM ANODES

NICKEL ALLOYS

NICKEL SALTS
(for electroplating)

NUCLEAR SHIELDING
LEAD

PHOSPHOR COPPER

SOLDER
(extruded, drawn and cast)

TIN
(pig, bar, ingot, wire, ribbon)

TYPE METALS

ZINC ANODES

ZINC DUST

ENTHONE PRODUCTS

BLACKENING
COMPOUNDS
BUFFING COMPOUNDS
CORROSION INHIBITORS
DERUSTING SALTS
ELECTROLESS PLATING
PROCESSES
METAL CLEANERS
METAL STRIPPERS
PLATING BRIGHTENERS
PLATING EQUIPMENT
SPECIALTY CHEMICALS
FOR METAL FINISHING

CONSOLIDATED BALANCE SHEET

AMERICAN SMELTING AND REFINING COMPANY.

	December 31,	
ASSETS	1965	1964
CURRENT ASSETS:		
Cash	\$ 13,750,682	\$ 19,167,540
Marketable securities (at cost, which approximates market)	105,478,353	75,402,588
Accounts receivable — less reserve	60,450,512	57,316,713
Inventories (note 2)	84,449,429	93,691,059
Materials and supplies	14,025,300	18,307,400
Prepaid expenses	364,800	525,300
TOTAL CURRENT ASSETS	<u>278,519,076</u>	<u>264,410,600</u>
MISCELLANEOUS ASSETS:		
U.S. Government and municipal securities maturing 1967-1972 (at cost, which approximates market)	14,438,146	14,540,580
Examinations in progress at new mining prospects	1,934,774	1,042,726
Common stock of the Company held for additional compensation plan (note 5)	933,396	2,170,814
Other	2,140,145	3,961,821
TOTAL MISCELLANEOUS ASSETS	<u>19,446,461</u>	<u>21,715,941</u>
PROPERTY:		
Buildings, equipment, mineral land, etc.	262,718,495	315,781,128
Less: Depreciation, depletion and amortization	136,691,302	175,920,275
NET PROPERTY	<u>126,027,193</u>	<u>139,860,853</u>
INVESTMENTS (see notes 1, 7 and page 23)	<u>82,784,546</u>	<u>58,516,204</u>
	<u>\$506,777,276</u>	<u>\$484,503,598</u>

Notes to Financial Statements are on page 24.

AND CONSOLIDATED SUBSIDIARIES

LIABILITIES

December 31,

	1965	1964
CURRENT LIABILITIES:		
Accounts payable	\$ 55,062,725	\$ 38,518,223
Salaries and wages accrued	4,023,973	3,779,985
Accrued taxes:		
U.S. and foreign taxes on income	17,844,627	20,884,177
Other	4,586,609	11,231,097
Miscellaneous	<u>5,331,331</u>	<u>3,845,516</u>
TOTAL CURRENT LIABILITIES	<u>86,849,265</u>	<u>78,258,998</u>
LONG TERM DEBT:		
4½ % Twenty-Five Year Subordinated Debentures, due October 15, 1988 (note 3)	<u>40,000,400</u>	<u>40,932,600</u>
NON-CURRENT ACCOUNTS PAYABLE	<u>3,153,301</u>	<u>2,782,358</u>
DEFERRED CREDITS (note 4)	<u>15,673,698</u>	<u>15,473,109</u>
RESERVES (note 5)	<u>2,543,286</u>	<u>2,591,782</u>

STOCKHOLDERS' EQUITY

COMMON STOCK (note 6)	130,381,842	129,200,985
Authorized 16,000,000 shares without par value; issued, 1965 — 11,158,929 shares, 1964 — 11,124,184 shares		
EARNINGS EMPLOYED IN THE BUSINESS	<u>240,672,163</u>	<u>215,263,766</u>
	<u>371,054,005</u>	<u>344,464,751</u>
Less: TREASURY STOCK, at cost — 232,843 shares	<u>12,496,679</u>	<u>—</u>
TOTAL STOCKHOLDERS' EQUITY	<u>358,557,326</u>	<u>344,464,751</u>
	<u>\$506,777,276</u>	<u>\$484,503,598</u>

CONSOLIDATED STATEMENT OF EARNINGS

AMERICAN SMELTING AND REFINING COMPANY

	<i>for the years ended December 31</i>	
	1965	1964
SALE OF PRODUCTS AND SERVICES	\$614,549,908	\$607,991,677
COSTS OF PRODUCTS AND SERVICES — exclusive of items deducted separately below	<u>516,484,160</u>	<u>518,792,603</u>
	98,065,748	89,199,074
OTHER INCOME:		
Dividends from subsidiaries not consolidated	3,117,342	3,063,524
Other dividends, interest and miscellaneous income	<u>11,940,412</u>	<u>7,541,539</u>
	<u>113,123,502</u>	<u>99,804,137</u>
DEDUCTIONS:		
Selling and administrative expenses	11,410,173	11,740,122
Research expenses and exploration expenses for new mines	3,529,415	2,942,501
State income and franchise taxes	1,248,074	890,274
Interest on debentures	1,886,863	1,893,025
Depreciation	10,112,992	11,583,037
Depletion	<u>1,417,758</u>	<u>1,952,413</u>
TOTAL DEDUCTIONS	<u>29,605,275</u>	<u>31,001,372</u>
EARNINGS BEFORE U.S. AND FOREIGN TAXES ON INCOME	83,518,227	68,802,765
U.S. AND FOREIGN TAXES ON INCOME	<u>31,062,305</u>	<u>26,885,249</u>
NET EARNINGS	52,455,922	41,917,516
SPECIAL ITEMS, net after taxes:		
Sale of Asarco Mexicana, S.A. stock	3,741,048	
Redemption of General Cable Corporation preferred stock		1,180,654
Sale of Garfield Chemical and Manufacturing Corporation stock and Western Phosphates, Inc. stock		<u>1,852,388</u>
NET EARNINGS AND SPECIAL ITEMS	<u>\$ 56,196,970</u>	<u>\$ 44,950,558</u>

Notes to Financial Statements are on page 24.

EARNINGS EMPLOYED IN THE BUSINESS

AND CONSOLIDATED SUBSIDIARIES

	<i>for the years ended December 31</i>	
	1965	1964
BALANCE AT BEGINNING OF YEAR	\$215,263,766	\$193,608,036
NET EARNINGS AND SPECIAL ITEMS	56,196,970	44,950,558
	<u>271,460,736</u>	<u>238,558,594</u>
DIVIDENDS PAID	30,788,573	23,294,828
BALANCE AT END OF YEAR	<u>\$240,672,163</u>	<u>\$215,263,766</u>

INVESTMENTS

December 31, 1965

Shares
Owned

Percent

Book Value
(cost or less)

Market
Value(a)

SUBSIDIARIES NOT CONSOLIDATED:

Mount Isa Mines Limited	51,204,860	53.7	\$ 12,603,022	\$231,446,000
Southern Peru Copper Corporation	167,890	51.5	15,887,144	
Southern Peru Copper Corporation — Advances			839,987	
Other			602,320	
			<u>29,932,473</u>	

COMPANIES OTHER THAN SUBSIDIARIES:

Asarco Mexicana, S.A.	3,538,009	49.0	26,899,634(b)	
General Cable Corporation (note 7)	2,424,295	36.1	4,223,173	167,276,400
Kennecott Copper Corporation	94,418	.9	2,619,919	11,578,000
Revere Copper and Brass Incorporated (note 7)	938,148	34.3	8,587,014	44,444,800
United Park City Mines Company	379,211	9.8	1,760,427	853,200
Other			8,761,906	
			<u>52,852,073</u>	
TOTAL INVESTMENTS			<u>\$ 82,784,546</u>	

(a) Amounts shown are based on December 31, 1965 quotations of stocks traded on the New York and London Stock Exchanges, but do not purport to represent the realizable or fair value of such large blocks of stock.

(b) Includes cost applicable to notes received in connection with sale of 51% interest to Mexican investors. See note 1.

NOTES TO FINANCIAL STATEMENTS

1. PRINCIPLES OF CONSOLIDATION

The consolidated statements include all subsidiaries 100% owned. The main operations are in the United States, but other important operations are in Canada and Peru.

Sale of 51% interest in the former 100% owned Mexican operating subsidiary resulted in elimination of that Company as a consolidated subsidiary and omission of further operating results starting with July 1, 1965. The cost applicable to the remaining interest is included in Investments.

Current assets and liabilities of foreign branches and consolidated subsidiaries have been adjusted to current rates of exchange and the resulting gain or loss reflected in earnings. Property accounts are reflected at historical U.S. currency acquisition cost.

Data pertaining to subsidiaries not consolidated and other investments are reported on page 23.

2. INVENTORIES

Inventories of smelters, refineries and secondary metal plants include \$66,595,000 (1964—\$60,695,000) at last-in first-out cost, reflecting some unearned profits of indeterminable amount, and \$8,024,000 (1964—\$18,831,000) of metals sold under firm contracts for future delivery, valued at sales prices. Inventories of mines aggregating \$3,566,000 (1964—\$4,676,000) are valued at first-in first-out cost. Inventory values do not exceed market.

3. 4% TWENTY-FIVE YEAR SUBORDINATED DEBENTURES, DUE OCTOBER 15, 1988

Semi-annually to October 15, 1967, \$818,652 must be deposited with the Trustee for the purchase of debentures at prices not exceeding their principal amount. Any unused funds are returnable to the Company 45 days after the payment date. Sinking Fund payments of \$1,637,304 are required each year beginning with 1968.

4. DEFERRED CREDITS

This caption includes \$15,131,000 (1964—\$14,853,000) representing the deferred tax benefit resulting from allowable deductions taken in the income tax returns in excess of depreciation and mine development charged against earnings in the accounts. Such deferred benefit will be transferred to earnings in later years when the related depreciation and mine development will not be deductible for income tax purposes.

5. RESERVES

This caption includes Additional Compensation Reserve of \$1,925,000 (1964—\$1,979,000). In 1965 \$2,330,000 was appropriated to the reserve from earnings, \$262,000 was paid in cash to officers and major executives, and \$2,121,000 was allotted in cash and common stock to other

eligible employees. For distribution under the Additional Compensation Plan, 28,741 shares of the Company's common stock were held at December 31, 1965 (1964—54,942 shares).

6. STOCK OPTIONS

A restricted stock option plan applicable to the Company's common stock in effect since 1955 expired June 30, 1965.

	Number of shares		
	Author- ized	Granted	Exer- cised
Balance Jan. 1, 1965	300,000	276,404	239,884
Transactions in 1965	—	—	34,745
At termination of plan	300,000	276,404	274,629

7. ANTI-TRUST SUIT

A civil anti-trust suit filed in January 1961 by the Department of Justice to compel divestment of the Company's holdings of General Cable Corporation and Revere Copper and Brass Incorporated stock is pending.

8. COMMITMENTS

In connection with the development of the Granduc copper mining project in British Columbia and other projects, the Company is obligated as set forth in the accompanying report to stockholders.

AUDITORS' CERTIFICATE

TO THE BOARD OF DIRECTORS OF AMERICAN SMELTING AND REFINING COMPANY:

We have examined the consolidated balance sheet of AMERICAN SMELTING AND REFINING COMPANY AND CONSOLIDATED SUBSIDIARIES as of December 31, 1965, and the related consolidated statements of earnings and earnings employed in the business for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. We previously examined and reported upon the financial statements of the Company for 1964.

In our opinion, the accompanying consolidated financial statements present fairly the financial position of American Smelting and Refining Company and Consolidated Subsidiaries at December 31, 1965 and 1964, and the results of their operations for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

New York, February 21, 1966

LYBRAND, ROSS BROS. & MONTGOMERY

EARNINGS AND DIVIDENDS TEN YEAR SUMMARY

(In Thousands of Dollars)

AMERICAN SMELTING AND REFINING COMPANY AND CONSOLIDATED SUBSIDIARIES

Year	Earnings before Taxes, Depreciation and Depletion	All Taxes*	Depreciation and Depletion	Net Earnings	Net Earnings Per Share of Common Stock**	Cash Dividends Paid on Common Stock		Total Cash Dividends Paid†
						Amount	Per Share**	
1956	\$100,185	\$51,000	\$ 9,358	\$39,827	\$3.34	\$19,052	\$1.75	\$22,552
1957	65,585	30,100	10,518	24,967	1.97	16,335	1.50	19,835
1958	49,346	21,800	10,266	17,280	1.27	8,170	0.75	11,670
1959‡	46,761	23,100	10,681	12,980	0.87	5,447	0.50	8,947
1960‡	69,055	33,900	11,411	23,744	1.86	9,532	0.88	13,032
1961	63,188	29,600	12,166	21,422	1.64	10,902	1.00	14,402
1962	76,708	35,300	13,687	27,721	2.22	12,562	1.15	16,062
1963	81,530	38,900	13,340	29,290	2.41	14,848	1.35	17,473
1964‡	108,053	52,600	13,535	41,918	3.77	23,295	2.10	23,295
1965‡	112,987	49,000	11,531	52,456	4.80	30,789	2.80	30,789

*U.S. and foreign income taxes, property and social security taxes, foreign production and export taxes, etc.

**Adjusted to reflect 2 for 1 stock split in May 1964.

†Includes \$3,500,000 paid on preferred stock each year (1963–\$2,625,000) until retired in 1963.

‡Excluding non-recurring profits, net after taxes:

1959 — \$15,801,000 (\$1.45 per share) from sale of Garfield copper smelter and of Cerro de Pasco Corp. Common Stock.

1960 — \$ 5,155,000 (\$0.47 per share) from sale of Southern Peru Copper Corporation stock.

1964 — \$ 3,033,000 (\$0.27 per share) from redemption of General Cable Corporation Preferred Stock and sale of Garfield Chemical and Manufacturing Corporation stock and Western Phosphates, Inc. stock.

1965 — \$ 3,741,000 (\$0.34 per share) from portion of shares of Asarco Mexicana, S.A., sold for cash.

PRODUCTION OF REFINERIES*

Year	Ounces Gold	Ounces Silver	Tons Copper	Tons Lead	Tons Zinc
1961	778,277	74,181,555	326,856	229,081	135,982
1962	716,054	72,539,734	394,929	201,404	132,526
1963	709,700	104,673,509**	402,127	205,745	131,549
1964	774,936	98,692,938**	437,255	239,119	154,992
1965	763,584	71,859,083**	442,724	222,466	154,734

PRODUCTION OF MINES AND MILLS*

Year	Tons Ore Mined	METAL CONTENT OF CONCENTRATES AND SHIPPING ORE				
		Ounces Gold	Ounces Silver	Tons Copper	Tons Lead	Tons Zinc
1961	5,800,310	12,749	7,486,098	49,699	36,164	64,148
1962	8,932,052	12,420	8,136,868	73,698	35,207	62,127
1963	11,308,034	11,698	8,130,258	85,560	38,732	73,888
1964	11,952,422	11,145	9,050,543	89,932	41,005	79,157
1965	11,416,914	11,536	9,148,145	89,692	43,268	91,558

*Does not include production in Mexico. Fifty-one percent of the capital stock of the former wholly owned Mexican operating subsidiary was sold in July 1965.

**Includes silver produced from base bullion bars treated for the U.S. Mint, approximately 3,500,000 ozs. in 1965, 20,800,000 ozs. in 1964 and 30,600,000 ozs. in 1963.

PRICES OF MAJOR METALS *Yearly Averages*

Year	Domestic Copper (f.o.b. refinery per lb.)†	Foreign Copper (f.o.b. refinery per lb.)†	Domestic Lead (New York per lb.)†	Domestic Zinc (E. St. Louis per lb.)†	Silver (per oz.)††
1961	29.921¢	27.919¢	10.871¢	11.542¢	92.449¢
1962	30.600	28.514	9.631	11.625	108.375
1963	30.600	28.413	11.137	11.997	127.912
1964	31.960	30.985	13.596	13.568	129.300
1965	35.017	35.604	16.000	14.500	129.300

†Engineering & Mining Journal Quotations.

††Handy & Harman Quotations.

MINES AND PLANTS

SMELTERS AND REFINERIES

Copper

Baltimore, Maryland (*Refinery*)

El Paso, Texas (*Smelter*)

Hayden, Arizona (*Smelter*)

Perth Amboy, New Jersey (*Refinery*)

Tacoma, Washington (*Smelter, Refinery*)

Lead

East Helena, Montana (*Smelter*)

El Paso, Texas (*Smelter*)

Omaha, Nebraska (*Refinery*)

Selby, California (*Smelter, Refinery*)

Zinc

Amarillo, Texas (*Retort Plant*)

Corpus Christi, Texas (*Electrolytic Plant*)

Cadmium

Denver, Colorado (*Refinery*)

MINING PROPERTIES

Buchans (*Zinc, Lead, Copper*)

Buchans, Newfoundland

Galena (*Silver, Copper*)

Wallace, Idaho

Ground Hog (*Silver, Lead, Zinc*)

Vanadium, New Mexico

Mission (*Copper, Molybdenum*)

Sahuarita, Arizona

Northport (*Zinc, Lead*)

Colville, Washington

Page (*Silver, Zinc, Lead*)

Kellogg, Idaho

Silver Bell (*Copper, Molybdenum*)

Silver Bell, Arizona

Northern Peru Mining Corporation

Chilete (*Zinc, Lead*)

Pacasmayo, Peru

Quiruvilca (*Copper*)

Trujillo, Peru

Lake Asbestos of Quebec, Ltd. (*Asbestos*)

Black Lake, Quebec

AFFILIATED MINING COMPANIES

Asarco Mexicana, S.A. (*Gold, Silver, Lead, Zinc, Copper, Coal, Coke*)

Mexico, D.F. Mexico

Mount Isa Mines Limited (*Silver, Copper, Lead, Zinc*)

Mount Isa, Queensland, Australia

Neptune Gold Mining Company (*Gold*)

Bonanza, Nicaragua

Southern Peru Copper Corporation

(*Copper, Molybdenum*)

Toquepala, Peru

FEDERATED METALS DIVISION

Alton, Illinois (*Aluminum Alloys*)

Houston, Texas (*Copper Base Alloys, White Metals, Lead Products, Magnesium Alloys*)

Los Angeles, California (*Copper Base Alloys, Aluminum Alloys*)

Newark, New Jersey (*Copper Base Alloys, White Metals, Magnesium Alloys*)

Perth Amboy, New Jersey (*Copper Base Alloys, Lead Products, Aluminum Alloys*)

San Francisco, California (*Copper Base Alloys, White Metals*)

Sand Springs, Oklahoma (*Zinc Dust*)

Trenton, New Jersey (*Zinc Dust*)

Whiting, Indiana (*Copper Base Alloys, White Metals*)

Lone Star Lead Construction Corp.

Houston, Texas (*Lead Construction*)

Federated Metals Canada Limited

Montreal, Quebec (*White Metals, Lead Products, Lead Construction*)

Toronto, Ontario (*White Metals, Zinc Die Cast Alloys, Metal Finishing Specialties*)

Enthone, Incorporated

West Haven, Connecticut (*Metal Finishing Specialties*)

Chicago, Illinois (*Metal Finishing Specialties*)

Incar, Inc.

Cleveland, Ohio (*Electroplating Specialties*)

DIRECTORS

E. McL. TITTMANN** ... *Chairman of the Board*
R. D. BRADFORD* ... *President*
CHARLES F. BARBER* ... *Executive Vice President*
GEORGE CHAMPION* ... *Chairman of the Board of The Chase Manhattan Bank N.A.*
RICHARD G. CROFT* ... *Chairman, Finance Committee, Great Northern Paper Company*
FORREST G. HAMRICK* ... *Vice President and Treasurer*
RALPH L. HENNEBACH ... *Vice President*
DEVEREUX C. JOSEPHS* ... *Director, New York Life Insurance Company*
JOHN M. KINGSLEY* ... *President of Bessemer Securities Corporation*
ROBERT S. MACFARLANE ... *President of Northern Pacific Railway Company*
J. D. MacKENZIE ... *Retired. Former Chairman of the Board and President of the Company*
R. E. McNEILL, JR.* ... *Chairman of the Board of Manufacturers Hanover Trust Company*
C. E. NELSON ... *Vice President*
DALE E. SHARP ... *Vice Chairman of Morgan Guaranty Trust Company of New York*
HANS STAUFFER ... *President of Stauffer Chemical Company*
SIMON D. STRAUSS ... *Vice President*
R. WORTH VAUGHAN ... *Vice President and General Counsel*

**Chairman of Executive Committee

*Member of Executive Committee

GENERAL OFFICERS

E. McL. TITTMANN ... *Chairman of the Board*
R. D. BRADFORD ... *President*
CHARLES F. BARBER ... *Executive Vice President*
A. M. CALLIS ... *Vice President (Federated Metals Division)*
FORREST G. HAMRICK ... *Vice President and Treasurer*
J. PAUL HARRISON ... *Vice President (Purchasing)*
R. L. HENNEBACH ... *Vice President (Smelting and Refining)*
FRANK L. MERWIN ... *Vice President (Traffic)*
C. E. NELSON ... *Vice President (Mining)*
W. J. NOCK ... *Vice President (Mexico), Director General, Asarco Mexicana, S.A.*
A. J. PHILLIPS ... *Vice President (Research)*
C. P. POLLOCK ... *Vice President (Exploration)*
DOUGLAS SOUTAR ... *Vice President (Industrial Relations and Personnel)*
SIMON D. STRAUSS ... *Vice President (Sales)*
R. WORTH VAUGHAN ... *Vice President and General Counsel*
H. L. GOODENOUGH ... *Comptroller*
H. W. GROSE ... *General Auditor*
HAROLD HOWE ... *Secretary*

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